SEQUENCE LISTING

<110> HOOD, John
      ELICEIRI, Brian
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<120> METHODS AND COMPOSITIONS USEFUL FOR
      MODULATION OF ANGIOGENESIS USING TYROSINE KINASE RAF AND RAS

<130> TSRI 710.2

<140> US 09/637,302
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<151> 2000-07-05

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gctgcatca atg gag cac ata cag gga gct tgg aag acg atc agc aat ggt 171
          Met Glu His Ile Gln Gly Ala Trp Lys Thr Ile Ser Asn Gly
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Phe Gly Phe Lys Asp Ala Val Phe Asp Gly Ser Ser Cys Ile Ser Pro
 15   20   25   30

aca ata gtt cag cag ttt ggc tat cag cgc cgg gca tca gat gat ggc   267
Thr Ile Val Gln Gln Phe Gly Tyr Gln Arg Arg Ala Ser Asp Asp Gly
                35   40   45

aaa ctc aca gat cct tct aag aca agc aac act atc cgt gtt ttc ttg   315
Lys Leu Thr Asp Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu
                50   55   60

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ccg aac aag caa aga aca gtg gtc aat gtg cga aat gga atg agc ttg    363
Pro Asn Lys Gln Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu
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cat gac tgc ctt atg aaa gca ctc aag gtg agg ggc ctg caa cca gag    411
His Asp Cys Leu Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu
        80              85              90

tgc tgt gca gtg ttc aga ctt ctc cac gaa cac aaa ggt aaa aaa gca    459
Cys Cys Ala Val Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala
95              100             105             110

cgc tta gat tgg aat act gat gct gcg tct ttg att gga gaa gaa ctt    507
Arg Leu Asp Trp Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu
                115             120             125

caa gta gat ttc ctg gat cat gtt ccc ctc aca aca cac aac ttt gct    555
Gln Val Asp Phe Leu Asp His Val Pro Leu Thr Thr His Asn Phe Ala
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cgg aag acg ttc ctg aag ctt gcc ttc tgt gac atc tgt cag aaa ttc    603
Arg Lys Thr Phe Leu Lys Leu Ala Phe Cys Asp Ile Cys Gln Lys Phe
            145             150             155

ctg ctc aat gga ttt cga tgt cag act tgt ggc tac aaa ttt cat gag    651
Leu Leu Asn Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Glu
        160             165             170

cac tgt agc acc aaa gta cct act atg tgt gtg gac tgg agt aac atc    699
His Cys Ser Thr Lys Val Pro Thr Met Cys Val Asp Trp Ser Asn Ile
175             180             185             190

aga caa ctc tta ttg ttt cca aat tcc act att ggt gat agt gga gtc    747
Arg Gln Leu Leu Leu Phe Pro Asn Ser Thr Ile Gly Asp Ser Gly Val
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cca gca cta cct tct ttg act atg cgt cgt atg cga gag tct gtt tcc    795
Pro Ala Leu Pro Ser Leu Thr Met Arg Arg Met Arg Glu Ser Val Ser
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agg atg cct gtt agt tct cag cac aga tat tct aca cct cac gcc ttc    843
Arg Met Pro Val Ser Ser Gln His Arg Tyr Ser Thr Pro His Ala Phe
            225             230             235

acc ttt aac acc tcc agt ccc tca tct gaa ggt tcc ctc tcc cag agg    891
Thr Phe Asn Thr Ser Ser Pro Ser Ser Glu Gly Ser Leu Ser Gln Arg
        240             245             250

cag agg tcg aca tcc aca cct aat gtc cac atg gtc agc acc acg ctg    939
Gln Arg Ser Thr Ser Thr Pro Asn Val His Met Val Ser Thr Thr Leu
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cct gtg gac agc agg atg att gag gat gca att cga agt cac agc gaa   987
Pro Val Asp Ser Arg Met Ile Glu Asp Ala Ile Arg Ser His Ser Glu
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tca gcc tca cct tca gcc ctg tcc agt agc ccc aac aat ctg agc cca   1035
Ser Ala Ser Pro Ser Ala Leu Ser Ser Ser Pro Asn Asn Leu Ser Pro
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aca ggc tgg tca cag ccg aaa acc ccc gtg cca gca caa aga gag cgg   1083
Thr Gly Trp Ser Gln Pro Lys Thr Pro Val Pro Ala Gln Arg Glu Arg
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gca cca gta tct ggg acc cag gag aaa aac aaa att agg cct cgt gga   1131
Ala Pro Val Ser Gly Thr Gln Glu Lys Asn Lys Ile Arg Pro Arg Gly
            320             325             330

cag aga gat tca agc tat tat tgg gaa ata gaa gcc agt gaa gtg atg   1179
Gln Arg Asp Ser Ser Tyr Tyr Trp Glu Ile Glu Ala Ser Glu Val Met
335             340             345             350

ctg tcc act cgg att ggg tca ggc tct ttt gga act gtt tat aag ggt   1227
Leu Ser Thr Arg Ile Gly Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly
            355             360             365

aaa tgg cac gga gat gtt gca gta aag atc cta aag gtt gtc gac cca   1275
Lys Trp His Gly Asp Val Ala Val Lys Ile Leu Lys Val Val Asp Pro
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acc cca gag caa ttc cag gcc ttc agg aat gag gtg gct gtt ctg cgc   1323
Thr Pro Glu Gln Phe Gln Ala Phe Arg Asn Glu Val Ala Val Leu Arg
            385             390             395

aaa aca cgg cat gtg aac att ctg ctt ttc atg ggg tac atg aca aag   1371
Lys Thr Arg His Val Asn Ile Leu Leu Phe Met Gly Tyr Met Thr Lys
            400             405             410

gac aac ctg gca att gtg acc cag tgg tgc gag ggc agc agc ctc tac   1419
Asp Asn Leu Ala Ile Val Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr
415             420             425             430

aaa cac ctg cat gtc cag gag acc aag ttt cag atg ttc cag cta att   1467
Lys His Leu His Val Gln Glu Thr Lys Phe Gln Met Phe Gln Leu Ile
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gac att gcc cgg cag acg gct cag gga atg gac tat ttg cat gca aag   1515
Asp Ile Ala Arg Gln Thr Ala Gln Gly Met Asp Tyr Leu His Ala Lys
            450             455             460

aac atc atc cat aga gac atg aaa tcc aac aat ata ttt ctc cat gaa   1563
Asn Ile Ile His Arg Asp Met Lys Ser Asn Asn Ile Phe Leu His Glu
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ggc tta aca gtg aaa att gga gat ttt ggt ttg gca aca gta aag tca   1611
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                cgc tgg agt ggt tct cag cag gtt gaa caa cct act ggc tct gtc ctc   1659
                Arg Trp Ser Gly Ser Gln Gln Val Glu Gln Pro Thr Gly Ser Val Leu
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                tgg atg gcc cca gag gtg atc cga atg cag gat aac aac cca ttc agt   1707
                Trp Met Ala Pro Glu Val Ile Arg Met Gln Asp Asn Asn Pro Phe Ser
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                ttc cag tcg gat gtc tac tcc tat ggc atc gta ttg tat gaa ctg atg   1755
                Phe Gln Ser Asp Val Tyr Ser Tyr Gly Ile Val Leu Tyr Glu Leu Met
                                530                 535                 540

                acg ggg gag ctt cct tat tct cac atc aac aac cga gat cag atc atc   1803
                Thr Gly Glu Leu Pro Tyr Ser His Ile Asn Asn Arg Asp Gln Ile Ile
                            545                 550                 555

                ttc atg gtg ggc cga gga tat gcc tcc cca gat ctt agt aag cta tat   1851
                Phe Met Val Gly Arg Gly Tyr Ala Ser Pro Asp Leu Ser Lys Leu Tyr
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                aag aac tgc ccc aaa gca atg aag agg ctg gta gct gac tgt gtg aag   1899
                Lys Asn Cys Pro Lys Ala Met Lys Arg Leu Val Ala Asp Cys Val Lys
                575                 580                 585                 590

                aaa gta aag gaa gag agg cct ctt ttt ccc cag atc ctg tct tcc att   1947
                Lys Val Lys Glu Glu Arg Pro Leu Phe Pro Gln Ile Leu Ser Ser Ile
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                gag ctg ctc caa cac tct cta ccg aag atc aac cgg agc gct tcc gag   1995
                Glu Leu Leu Gln His Ser Leu Pro Lys Ile Asn Arg Ser Ala Ser Glu
                            610                 615                 620

                cca tcc ttg cat cgg gca gcc cac act gag gat atc aat gct tgc acg   2043
                Pro Ser Leu His Arg Ala Ala His Thr Glu Asp Ile Asn Ala Cys Thr
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                ctg acc acg tcc ccg agg ctg cct gtc ttc tagttgactt tgcacctgtc     2093
                Leu Thr Thr Ser Pro Arg Leu Pro Val Phe
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Val Gln Gln Phe Gly Tyr Gln Arg Arg Ala Ser Asp Asp Gly Lys Leu
            35                  40                  45
Thr Asp Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu Pro Asn
        50                  55                  60
Lys Gln Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu His Asp
65                  70                  75                  80
Cys Leu Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu Cys Cys
                85                  90                  95
Ala Val Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala Arg Leu
            100                 105                 110
Asp Trp Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu Gln Val
            115                 120                 125
Asp Phe Leu Asp His Val Pro Leu Thr Thr His Asn Phe Ala Arg Lys
        130                 135                 140
Thr Phe Leu Lys Leu Ala Phe Cys Asp Ile Cys Gln Lys Phe Leu Leu
145                 150                 155                 160
Asn Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Glu His Cys
                165                 170                 175
Ser Thr Lys Val Pro Thr Met Cys Val Asp Trp Ser Asn Ile Arg Gln
            180                 185                 190
Leu Leu Leu Phe Pro Asn Ser Thr Ile Gly Asp Ser Gly Val Pro Ala
            195                 200                 205
Leu Pro Ser Leu Thr Met Arg Arg Met Arg Glu Ser Val Ser Arg Met
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Pro Val Ser Ser Gln His Arg Tyr Ser Thr Pro His Ala Phe Thr Phe
225                 230                 235                 240
Asn Thr Ser Ser Pro Ser Ser Glu Gly Ser Leu Ser Gln Arg Gln Arg
                245                 250                 255
Ser Thr Ser Thr Pro Asn Val His Met Val Ser Thr Thr Leu Pro Val
            260                 265                 270
Asp Ser Arg Met Ile Glu Asp Ala Ile Arg Ser His Ser Glu Ser Ala
            275                 280                 285
Ser Pro Ser Ala Leu Ser Ser Ser Pro Asn Asn Leu Ser Pro Thr Gly
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Trp Ser Gln Pro Lys Thr Pro Val Pro Ala Gln Arg Glu Arg Ala Pro
305                 310                 315                 320
Val Ser Gly Thr Gln Glu Lys Asn Lys Ile Arg Pro Arg Gly Gln Arg
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Asp Ser Ser Tyr Tyr Trp Glu Ile Glu Ala Ser Glu Val Met Leu Ser
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Thr Arg Ile Gly Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly Lys Trp
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His Gly Asp Val Ala Val Lys Ile Leu Lys Val Val Asp Pro Thr Pro
    370                      375                      380
Glu Gln Phe Gln Ala Phe Arg Asn Glu Val Ala Val Leu Arg Lys Thr
385                      390                      395                      400
Arg His Val Asn Ile Leu Leu Phe Met Gly Tyr Met Thr Lys Asp Asn
                405                      410                      415
Leu Ala Ile Val Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr Lys His
            420                      425                      430
Leu His Val Gln Glu Thr Lys Phe Gln Met Phe Gln Leu Ile Asp Ile
            435                      440                      445
Ala Arg Gln Thr Ala Gln Gly Met Asp Tyr Leu His Ala Lys Asn Ile
450                      455                      460
Ile His Arg Asp Met Lys Ser Asn Asn Ile Phe Leu His Glu Gly Leu
465                      470                      475                      480
Thr Val Lys Ile Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp
            485                      490                      495
Ser Gly Ser Gln Gln Val Glu Gln Pro Thr Gly Ser Val Leu Trp Met
            500                      505                      510
Ala Pro Glu Val Ile Arg Met Gln Asp Asn Asn Pro Phe Ser Phe Gln
            515                      520                      525
Ser Asp Val Tyr Ser Tyr Gly Ile Val Leu Tyr Glu Leu Met Thr Gly
            530                      535                      540
Glu Leu Pro Tyr Ser His Ile Asn Asn Arg Asp Gln Ile Ile Phe Met
545                      550                      555                      560
Val Gly Arg Gly Tyr Ala Ser Pro Asp Leu Ser Lys Leu Tyr Lys Asn
                565                      570                      575
Cys Pro Lys Ala Met Lys Arg Leu Val Ala Asp Cys Val Lys Lys Val
            580                      585                      590
Lys Glu Glu Arg Pro Leu Phe Pro Gln Ile Leu Ser Ser Ile Glu Leu
            595                      600                      605
Leu Gln His Ser Leu Pro Lys Ile Asn Arg Ser Ala Ser Glu Pro Ser
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agt gcg ctg acc atc cag ctg atc cag aac cat ttt gtg gac gaa tac     96
Ser Ala Leu Thr Ile Gln Leu Ile Gln Asn His Phe Val Asp Glu Tyr
                20                  25                  30

gac ccc act ata gag gat tcc tac cgg aag cag gtg gtc att gat ggg    144
Asp Pro Thr Ile Glu Asp Ser Tyr Arg Lys Gln Val Val Ile Asp Gly
            35                  40                  45

gag acg tgc ctg ttg gac atc ctg gat acc gcc ggc cag gag gag tac    192
Glu Thr Cys Leu Leu Asp Ile Leu Asp Thr Ala Gly Gln Glu Glu Tyr
        50                  55                  60

agc gcc atg cgg gac cag tac atg cgc acc ggg gag ggc ttc ctg tgt    240
Ser Ala Met Arg Asp Gln Tyr Met Arg Thr Gly Glu Gly Phe Leu Cys
 65                  70                  75                  80

gtg ttt gcc atc aac aac acc aag tct ttt gag gac atc cac cag tac    288
Val Phe Ala Ile Asn Asn Thr Lys Ser Phe Glu Asp Ile His Gln Tyr
                85                  90                  95

agg gag cag atc aaa cgg gtg aag gac tcg gat gac gtg ccc atg gtg    336
Arg Glu Gln Ile Lys Arg Val Lys Asp Ser Asp Asp Val Pro Met Val
                100                 105                 110

ctg gtg ggg aac aag tgt gac ctg gct gca cgc act gtg gaa tct cgg    384
Leu Val Gly Asn Lys Cys Asp Leu Ala Ala Arg Thr Val Glu Ser Arg
            115                 120                 125

cag gct cag gac ctc gcc cga agc tac ggc atc ccc tac atc gag acc    432
Gln Ala Gln Asp Leu Ala Arg Ser Tyr Gly Ile Pro Tyr Ile Glu Thr
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tcg gcc aag acc cgg cag gga gtg gag gat gcc ttc tac acg ttg gtg    480
Ser Ala Lys Thr Arg Gln Gly Val Glu Asp Ala Phe Tyr Thr Leu Val
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Arg Glu Ile Arg Gln His Lys Leu Arg Lys Leu Asn Pro Pro Asp Glu
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Asp Pro Thr Ile Glu Asp Ser Tyr Arg Lys Gln Val Val Ile Asp Gly
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Glu Thr Cys Leu Leu Asp Ile Leu Asp Thr Ala Gly Gln Glu Glu Tyr
      50   55   60
Ser Ala Met Arg Asp Gln Tyr Met Arg Thr Gly Glu Gly Phe Leu Cys
65   70   75   80
Val Phe Ala Ile Asn Asn Thr Lys Ser Phe Glu Asp Ile His Gln Tyr
               85   90   95
Arg Glu Gln Ile Lys Arg Val Lys Asp Ser Asp Asp Val Pro Met Val
            100   105   110
Leu Val Gly Asn Lys Cys Asp Leu Ala Ala Arg Thr Val Glu Ser Arg
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Gln Ala Gln Asp Leu Ala Arg Ser Tyr Gly Ile Pro Tyr Ile Glu Thr
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Ser Ala Lys Thr Arg Gln Gly Val Glu Asp Ala Phe Tyr Thr Leu Val
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Ser Gly Pro Gly Cys Met Ser Cys Lys Cys Val Leu Ser
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<220>
<223> Description of Artificial Sequence: fusion protein

<221> CDS
<222> (1)...(2004)

<400> 6

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Met Glu His Ile Gln Gly Ala Trp Lys Thr Ile Ser Asn Gly Phe Gly
1               5                   10                  15


ttc aaa gat gcc gtg ttt gat ggc tcc agc tgc atc tct cct aca ata    96
Phe Lys Asp Ala Val Phe Asp Gly Ser Ser Cys Ile Ser Pro Thr Ile
            20                  25                  30


gtt cag cag ttt ggc tat cag cgc cgg gca tca gat gat ggc aaa ctc   144
Val Gln Gln Phe Gly Tyr Gln Arg Arg Ala Ser Asp Asp Gly Lys Leu
        35                  40                  45


aca gat cct tct aag aca agc aac act atc cgt gtt ttc ttg ccg aac   192
Thr Asp Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu Pro Asn
        50                  55                  60


aag caa aga aca gtg gtc aat gtg cga aat gga atg agc ttg cat gac   240
Lys Gln Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu His Asp
65                  70                  75                  80


tgc ctt atg aaa gca ctc aag gtg agg ggc ctg caa cca gag tgc tgt   288
Cys Leu Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu Cys Cys
                85                  90                  95


gca gtg ttc aga ctt ctc cac gaa cac aaa ggt aaa aaa gca cgc tta   336
Ala Val Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala Arg Leu
                100                 105                 110


gat tgg aat act gat gct gcg tct ttg att gga gaa gaa ctt caa gta   384
Asp Trp Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu Gln Val
                115                 120                 125


gat ttc ctg gat cat gtt ccc ctc aca aca cac aac ttt gct cgg aag   432
Asp Phe Leu Asp His Val Pro Leu Thr Thr His Asn Phe Ala Arg Lys
            130                 135                 140


acg ttc ctg aag ctt gcc ttc tgt gac atc tgt cag aaa ttc ctg ctc   480
Thr Phe Leu Lys Leu Ala Phe Cys Asp Ile Cys Gln Lys Phe Leu Leu
145                 150                 155                 160


aat gga ttt cga tgt cag act tgt ggc tac aaa ttt cat gag cac tgt   528
Asn Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Glu His Cys
                165                 170                 175


agc acc aaa gta cct act atg tgt gtg gac tgg agt aac atc aga caa   576
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Ser Thr Lys Val Pro Thr Met Cys Val Asp Trp Ser Asn Ile Arg Gln
        180   185   190

ctc tta ttg ttt cca aat tcc act att ggt gat agt gga gtc cca gca   624
Leu Leu Leu Phe Pro Asn Ser Thr Ile Gly Asp Ser Gly Val Pro Ala
        195   200   205

cta cct tct ttg act atg cgt cgt atg cga gag tct gtt tcc agg atg   672
Leu Pro Ser Leu Thr Met Arg Arg Met Arg Glu Ser Val Ser Arg Met
     210   215   220

cct gtt agt tct cag cac aga tat tct aca cct cac gcc ttc acc ttt   720
Pro Val Ser Ser Gln His Arg Tyr Ser Thr Pro His Ala Phe Thr Phe
225   230   235   240

aac acc tcc agt ccc tca tct gaa ggt tcc ctc tcc cag agg cag agg   768
Asn Thr Ser Ser Pro Ser Ser Glu Gly Ser Leu Ser Gln Arg Gln Arg
              245   250   255

tcg aca tcc aca cct aat gtc cac atg gtc agc acc acg ctg cct gtg   816
Ser Thr Ser Thr Pro Asn Val His Met Val Ser Thr Thr Leu Pro Val
        260   265   270

gac agc agg atg att gag gat gca att cga agt cac agc gaa tca gcc   864
Asp Ser Arg Met Ile Glu Asp Ala Ile Arg Ser His Ser Glu Ser Ala
        275   280   285

tca cct tca gcc ctg tcc agt agc ccc aac aat ctg agc cca aca ggc   912
Ser Pro Ser Ala Leu Ser Ser Ser Pro Asn Asn Leu Ser Pro Thr Gly
     290   295   300

tgg tca cag ccg aaa acc ccc gtg cca gca caa aga gag cgg gca cca   960
Trp Ser Gln Pro Lys Thr Pro Val Pro Ala Gln Arg Glu Arg Ala Pro
305   310   315   320

gta tct ggg acc cag gag aaa aac aaa att agg cct cgt gga cag aga   1008
Val Ser Gly Thr Gln Glu Lys Asn Lys Ile Arg Pro Arg Gly Gln Arg
          325   330   335

gat tca agc tat tat tgg gaa ata gaa gcc agt gaa gtg atg ctg tcc   1056
Asp Ser Ser Tyr Tyr Trp Glu Ile Glu Ala Ser Glu Val Met Leu Ser
        340   345   350

act cgg att ggg tca ggc tct ttt gga act gtt tat aag ggt aaa tgg   1104
Thr Arg Ile Gly Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly Lys Trp
        355   360   365

cac gga gat gtt gca gta aag atc cta aag gtt gtc gac cca acc cca   1152
His Gly Asp Val Ala Val Lys Ile Leu Lys Val Val Asp Pro Thr Pro
     370   375   380

gag caa ttc cag gcc ttc agg aat gag gtg gct gtt ctg cgc aaa aca   1200
Glu Gln Phe Gln Ala Phe Arg Asn Glu Val Ala Val Leu Arg Lys Thr

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        385                      390                      395                      400

        cgg cat gtg aac att ctg ctt ttc atg ggg tac atg aca aag gac aac    1248
        Arg His Val Asn Ile Leu Leu Phe Met Gly Tyr Met Thr Lys Asp Asn
                            405                      410                      415

        ctg gca att gtg acc cag tgg tgc gag ggc agc agc ctc tac aaa cac    1296
        Leu Ala Ile Val Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr Lys His
                            420                      425                      430

        ctg cat gtc cag gag acc aag ttt cag atg ttc cag cta att gac att    1344
        Leu His Val Gln Glu Thr Lys Phe Gln Met Phe Gln Leu Ile Asp Ile
                            435                      440                      445

        gcc cgg cag acg gct cag gga atg gac tat ttg cat gca aag aac atc    1392
        Ala Arg Gln Thr Ala Gln Gly Met Asp Tyr Leu His Ala Lys Asn Ile
                            450                      455                      460

        atc cat aga gac atg aaa tcc aac aat ata ttt ctc cat gaa ggc tta    1440
        Ile His Arg Asp Met Lys Ser Asn Asn Ile Phe Leu His Glu Gly Leu
        465                      470                      475                      480

        aca gtg aaa att gga gat ttt ggt ttg gca aca gta aag tca cgc tgg    1488
        Thr Val Lys Ile Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp
                            485                      490                      495

        agt ggt tct cag cag gtt gaa caa cct act ggc tct gtc ctc tgg atg    1536
        Ser Gly Ser Gln Gln Val Glu Gln Pro Thr Gly Ser Val Leu Trp Met
                            500                      505                      510

        gcc cca gag gtg atc cga atg cag gat aac aac cca ttc agt ttc cag    1584
        Ala Pro Glu Val Ile Arg Met Gln Asp Asn Asn Pro Phe Ser Phe Gln
                            515                      520                      525

        tcg gat gtc tac tcc tat ggc atc gta ttg tat gaa ctg atg acg ggg    1632
        Ser Asp Val Tyr Ser Tyr Gly Ile Val Leu Tyr Glu Leu Met Thr Gly
                            530                      535                      540

        gag ctt cct tat tct cac atc aac aac cga gat cag atc atc ttc atg    1680
        Glu Leu Pro Tyr Ser His Ile Asn Asn Arg Asp Gln Ile Ile Phe Met
        545                      550                      555                      560

        gtg ggc cga gga tat gcc tcc cca gat ctt agt aag cta tat aag aac    1728
        Val Gly Arg Gly Tyr Ala Ser Pro Asp Leu Ser Lys Leu Tyr Lys Asn
                            565                      570                      575

        tgc ccc aaa gca atg aag agg ctg gta gct gac tgt gtg aag aaa gta    1776
        Cys Pro Lys Ala Met Lys Arg Leu Val Ala Asp Cys Val Lys Lys Val
                            580                      585                      590

        aag gaa gag agg cct ctt ttt ccc cag atc ctg tct tcc att gag ctg    1824
        Lys Glu Glu Arg Pro Leu Phe Pro Gln Ile Leu Ser Ser Ile Glu Leu
                            595                      600                      605
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ctc caa cac tct cta ccg aag atc aac cgg agc gct tcc gag cca tcc    1872
Leu Gln His Ser Leu Pro Lys Ile Asn Arg Ser Ala Ser Glu Pro Ser
    610             615             620

ttg cat cgg gca gcc cac act gag gat atc aat gct tgc acg ctg acc    1920
Leu His Arg Ala Ala His Thr Glu Asp Ile Asn Ala Cys Thr Leu Thr
625             630             635             640

acg tcc ccg agg ctg cct gtc ttc tac tcg ttc ctg ccg ttc ttc ttc    1968
Thr Ser Pro Arg Leu Pro Val Phe Tyr Ser Phe Leu Pro Phe Phe Phe
            645             650             655

ttc ttc ttc tcg ttc tgt ttc acg cct agt aca ttc                    2004
Phe Phe Phe Ser Phe Cys Phe Thr Pro Ser Thr Phe
            660             665


<210> 7
<211> 668
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: fusion protein

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Met Glu His Ile Gln Gly Ala Trp Lys Thr Ile Ser Asn Gly Phe Gly
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Phe Lys Asp Ala Val Phe Asp Gly Ser Ser Cys Ile Ser Pro Thr Ile
            20                  25                  30
Val Gln Gln Phe Gly Tyr Gln Arg Arg Ala Ser Asp Asp Gly Lys Leu
            35                  40                  45
Thr Asp Pro Ser Lys Thr Ser Asn Thr Ile Arg Val Phe Leu Pro Asn
    50                  55                  60
Lys Gln Arg Thr Val Val Asn Val Arg Asn Gly Met Ser Leu His Asp
65                  70                  75                  80
Cys Leu Met Lys Ala Leu Lys Val Arg Gly Leu Gln Pro Glu Cys Cys
                85                  90                  95
Ala Val Phe Arg Leu Leu His Glu His Lys Gly Lys Lys Ala Arg Leu
                100                 105                 110
Asp Trp Asn Thr Asp Ala Ala Ser Leu Ile Gly Glu Glu Leu Gln Val
            115                 120                 125
Asp Phe Leu Asp His Val Pro Leu Thr Thr His Asn Phe Ala Arg Lys
    130                 135                 140
Thr Phe Leu Lys Leu Ala Phe Cys Asp Ile Cys Gln Lys Phe Leu Leu
145                 150                 155                 160
Asn Gly Phe Arg Cys Gln Thr Cys Gly Tyr Lys Phe His Glu His Cys
                165                 170                 175
Ser Thr Lys Val Pro Thr Met Cys Val Asp Trp Ser Asn Ile Arg Gln
                180                 185                 190
Leu Leu Leu Phe Pro Asn Ser Thr Ile Gly Asp Ser Gly Val Pro Ala
            195                 200                 205
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```
Leu Pro Ser Leu Thr Met Arg Arg Met Arg Glu Ser Val Ser Arg Met
    210             215             220
Pro Val Ser Ser Gln His Arg Tyr Ser Thr Pro His Ala Phe Thr Phe
225             230             235             240
Asn Thr Ser Ser Pro Ser Ser Glu Gly Ser Leu Ser Gln Arg Gln Arg
            245             250             255
Ser Thr Ser Thr Pro Asn Val His Met Val Ser Thr Thr Leu Pro Val
            260             265             270
Asp Ser Arg Met Ile Glu Asp Ala Ile Arg Ser His Ser Glu Ser Ala
    275             280             285
Ser Pro Ser Ala Leu Ser Ser Ser Pro Asn Asn Leu Ser Pro Thr Gly
    290             295             300
Trp Ser Gln Pro Lys Thr Pro Val Pro Ala Gln Arg Glu Arg Ala Pro
305             310             315             320
Val Ser Gly Thr Gln Glu Lys Asn Lys Ile Arg Pro Arg Gly Gln Arg
            325             330             335
Asp Ser Ser Tyr Tyr Trp Glu Ile Glu Ala Ser Glu Val Met Leu Ser
            340             345             350
Thr Arg Ile Gly Ser Gly Ser Phe Gly Thr Val Tyr Lys Gly Lys Trp
    355             360             365
His Gly Asp Val Ala Val Lys Ile Leu Lys Val Val Asp Pro Thr Pro
    370             375             380
Glu Gln Phe Gln Ala Phe Arg Asn Glu Val Ala Val Leu Arg Lys Thr
385             390             395             400
Arg His Val Asn Ile Leu Leu Phe Met Gly Tyr Met Thr Lys Asp Asn
            405             410             415
Leu Ala Ile Val Thr Gln Trp Cys Glu Gly Ser Ser Leu Tyr Lys His
            420             425             430
Leu His Val Gln Glu Thr Lys Phe Gln Met Phe Gln Leu Ile Asp Ile
    435             440             445
Ala Arg Gln Thr Ala Gln Gly Met Asp Tyr Leu His Ala Lys Asn Ile
    450             455             460
Ile His Arg Asp Met Lys Ser Asn Asn Ile Phe Leu His Glu Gly Leu
465             470             475             480
Thr Val Lys Ile Gly Asp Phe Gly Leu Ala Thr Val Lys Ser Arg Trp
            485             490             495
Ser Gly Ser Gln Gln Val Glu Gln Pro Thr Gly Ser Val Leu Trp Met
            500             505             510
Ala Pro Glu Val Ile Arg Met Gln Asp Asn Asn Pro Phe Ser Phe Gln
            515             520             525
Ser Asp Val Tyr Ser Tyr Gly Ile Val Leu Tyr Glu Leu Met Thr Gly
    530             535             540
Glu Leu Pro Tyr Ser His Ile Asn Asn Arg Asp Gln Ile Ile Phe Met
545             550             555             560
Val Gly Arg Gly Tyr Ala Ser Pro Asp Leu Ser Lys Leu Tyr Lys Asn
            565             570             575
Cys Pro Lys Ala Met Lys Arg Leu Val Ala Asp Cys Val Lys Lys Val
            580             585             590
Lys Glu Glu Arg Pro Leu Phe Pro Gln Ile Leu Ser Ser Ile Glu Leu
            595             600             605
Leu Gln His Ser Leu Pro Lys Ile Asn Arg Ser Ala Ser Glu Pro Ser
    610             615             620
Leu His Arg Ala Ala His Thr Glu Asp Ile Asn Ala Cys Thr Leu Thr
```

```
    625                   630                   635                   640
    Thr Ser Pro Arg Leu Pro Val Phe Tyr Ser Phe Leu Pro Phe Phe Phe
                          645                   650                   655
    Phe Phe Phe Ser Phe Cys Phe Thr Pro Ser Thr Phe
                          660                   665
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